usefulness; nor will it be denied, I think, that its usefulness will be greatly increased by having evening classes in addition to those held during the day. Many persons whose time is fully occupied during the day, would be glad to pay even larger fees than those charged to day-scholars, in order to get a sound practical knowledge of one or more branches of science by attending classes two or three evenings a week. The fees could form an addition to the salary of the Professors who gave the additional time and labour. It would be easy to arrange the proposed classes so as not to be burdensome on any one of the Professors. As an experiment to begin with, the classes might be held on only the first three nights of the week. On Monday evening there could be a class in Physics; on Tuesday one in Chemistry; and on Wednesday one in Biology, with practical courses in each. Two hours might be profitably spent on each evening,—one with the lectures, and the other with the practical courses. In this way no Professor would be called upon to give up more of his time than one night a week. Surely there ought not to be any difficulty in carrying out this suggestion.

J.

EXAMINATIONS IN GEOMETRY.

MR. EDITOR, I write for information. Has there been any agreement among Examiners, or rule established by those in authority, to govern students in *writing* and *demonstrating* propositions in Geometry, at our various examinations? I have made diligent enquiries in many directions but found little satisfaction. Some would have every word written in full, even to *Quod erat demonstrandum;* while others give a list of symbols, saying, these you shall use and no more; but why these and no more does not appear. I am informed that no examination passes without a discussion among examiners upon this question. The general rule seems to be, "use no algebraic symbols;" but who is to draw the line and tell us what symbols are algebraic and what geometric? May we go as far as Hamblin Smith goes? If his mode is accepted in examinations for certificates will it also be accepted in Toronto University?

Another, and yet more important question, arises in regard to demonstrations. Must Euclid be followed in all cases? or may we follow Hamblin Smith? If we deviate as far from Euclid as Smith, may we not go yet further and write *any* logical demonstration? The importance of the first question will be evident from a comparison of the length of the following:—

Euclid=Let the straight line E F, which falls upon the two straight lines A B, C D, make the exterior angle E G B equal to the interior and opposite angle G H D, upon the same side of the line E F; or make the two interior angles B G H, G H D, on the same side together equal to two right angles. Then A B shall be parallel to C D.

Because the angle E G B is equal to the angle G H D, (Hyp), and the angle E G B is equal to the angle A G H (1—15), therefore the angle A G H is equal to the angle G H D; (ax. 1) and they are alternate angles, therefore A B is parallel to C D (I—27.)

H. S. Let the st. line E F, falling on st. lines A B, C D, make ∠ E G B=corresponding ∠s G H D, or ∠s B G H, G H D together=two rt. ∠s, then in either case, A B must be ∥ to C D. ∵ ∠ E G B is given=∠ G H D, (Hyp) and ∠ E G B is known to be=∠ A G H, (I. 15) ∴ ∠ A G H=∠ G H D, and these are alternate ∠s; ∴ A B is ∥ to C D. (I.27.)

At a glance any one will see that at least one third of the time is saved by the last mode, a consideration of great importance in competitive examinations. The importance of the second question will appear from a comparison of the two methods of demonstrating the fifth proposition B. I., as in Pott's Euclid and Smith's Geometry. Hoping for light; and apologizing for all this space, yet thinking the questions worthy of it, I am, yours truly,

TEACHER.

[We would like to hear from Mathematical Masters on this subject, which is one, as our correspondent indicates, upon which there is a variety of opinion.—Math. Ed., *C.E.M.*]